Notes on the Examination of the Eyes of a Criminal executed by hanging. By Dr. GREEN.—No trace of any lesion, either of the capsule or lens, could be discovered in either eye, and the optic disks and retinæ were found to be normal.

Castor Oil as a Menstruum for dissolving Atropia for Application to the Eye.—Dr. GREEN recommends the substitution of the alkaloid for the salt, the latter not being readily soluble in oil.

"*Double glasses*" are recommended by Dr. H. D. NOYES, of New York, to diminish the amount of spherical aberration when a very short focus is required. He has been able to accomplish this by putting together two plano-convex lenses, with their convex sides towards each other.

Remarks of Dr. H. D. Noyes in connection with Dr. Webster's paper "On separation of the retina."—Among 43 cases of sub-retinal effusion, he had met with only one in which the fluid was spontaneously absorbed.

Eight cases of spontaneous cure will be reported by Dr. Althof in the next number of the Transactions. G. C. H.

ART. XXVIII.—*Transactions of the American Neurological Association for* 1875. Edited by F. P. KINNICUTT, M.D., and T. A. MCBRIDE, M.D. Vol. I. 8vo. pp. 257. New York, 1876.

IN December, 1874, a letter, signed by Messrs. Wm. A. Hammond, Roberts Bartholow, Meredith Clymer, J. S. Jewell, E. C. Seguin, James J. Putnam, and T. M. B. Cross, was sent to certain medical gentlemen in different parts of the country, inviting them to participate in a meeting to be held June 2, 1875, in the city of New York, to institute a society for the cultivation of neurological science. In response to this call, thirty-five gentlemen met, as stated, and organized "The American Neurological Association"; tendering the compliment of the first presidency of the society to Dr. S. Weir Mitchell of Philadelphia; but, this gentleman declining, Dr. Jewell of Chicago was unanimously chosen to fill the office.

The proceedings of this meeting, the rules for its government adopted by the Association, and the papers approved by the Committee of Publication, constitute the extremely creditable volume now before us.

The initiatory article, by Dr. JAS. J. PUTNAM, is devoted to the consideration of a *Case of Circumscribed Analgesia*, or, more definitely, one of incomplete sensor paralysis of well-defined limits, affecting the left upper extremity and corresponding side of the neck. A young man of 18 had noticed, after an attack of typhoid fever, that slight wounds of the left hand healed slowly and gave no pain. When he came under observation thirty months later, it was found that a region on the left side of the body, corresponding to the distribution of the entire cervical and brachial plexus, most of the intercostal nerves, and a small part of the 5th cranial, was the seat of a peculiar insensibility. The contact of small objects, such as a feather, or drops of water, was distinctly, though less than normally, appreciated; while the sense of pain from strong electrical currents, pricking, or pinching, was almost entirely abolished. The hand could be kept in water at 120° F. for two minutes before the sensation of warmth was experienced, but at more elevated temperatures painful sensations were produced in a few seconds. With the æsthesiometer the tactile sense was found to be but slightly defective; there was no loss whatever of power in the muscular apparatus, and the nutrition of the part was not impaired. The affected area was sharply defined on the face and neck, but its limits were not constant; since coming under observation this portion had regained to quite an extent its normal condition. The case was looked upon as the immediate consequence of the typhoid fever, and probably purely peripheral in its nature; so regarded chiefly on account of its definite location. In the discussion of this paper Dr. Seguin expressed the opinion that the real cause of the condition noticed in the case resided in some encephalic trouble.

Dr. S. G. WEBBER of Boston, under the title of *A Contribution to the Study of Myelitis*, gives the history, with the post-mortem examination, of two cases of spinal disease; the article being illustrated by plates showing the microscopic appearance of sections of the cord and paralyzed muscles. The paper supports the view that, in a certain class of cases of spinal paralysis, other portions of the cord than the kinesodic tract are either primarily or secondarily affected; or, in other words, that the degeneration of the ganglion cells in the anterior cornua is not the only lesion existing in the spinal paralysis of adults; the writer inclining to the view that in the pathological process the first stage is one of congestion.

In speaking of these cases, after the reading of the paper, Dr. Seguin expressed the opinion that one of them was an instance of localized myelitis involving every part of the cord, and that the other was an exceptional case of spinal paralysis. In reply to a question regarding the differential diagnosis of congestion of the cord and incipient inflammation, Dr. Webber said that he knew of no means that would enable him to decide whether mere congestion or organic change was present at any given time. Dr. Clymer quoted a case of acute spinal paralysis in an adult treated with the best results. Wet cups to the spine, repeated, followed by free blistering and the galvanic current, prevented atrophy and loss of function of the muscles, and the patient now can walk without much imperfection in his gait. He was of the opinion that this case was one of congestion of the spinal cord, accompanied by some destruction of the cells in the anterior cornua, and believed that it would have gone on to the production of more serious changes, had not the treatment been promptly antiphlogistic.

The Structure of the Nervous Tissues and their Mode of Action is the subject of the most extended article in the series, contributed by Dr. H. D. SCHMIDT of New Orleans. About two-thirds of the paper are devoted to an interesting summary of existing and accepted views of the structure of the normal nervous tissues, the second portion considering the function of the individual anatomical elements. A large part of the first division is the result of original microscopic observation, and has been previously published elsewhere by Dr. Schmidt; but, as the sketch of the development of nerve-tissue in the fœtus is presented for the first time, it may not be uninteresting to reproduce part of it here:—

> "Three principal anatomical elements take part in the formation of the primitive nervous tissue in the human embryo, namely, 1. a gelatinous, homogeneous liquid; 2, a great number of small granules of about $\frac{1}{1500}$ to $\frac{1}{1200}$ mm. in diameter, which most probably originate directly in the former; and, 3, a considerable number of small round or oval nuclei. Besides these elements, there are also observed a number of certain embryonic cells, filled with small nuclei, which are concerned in the process of multiplication of the latter. These few elements not only serve to the development of the nervous tissues, but also to that of their bloodvessels.
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> "In the smallest human embryos which I examined in the course of these special studies, measuring about 9 mm. in length, the substance of the brain consisted only of the above elements. With the exception of some short

granular fibrillæ adhering to some of the nuclei, no other trace of the formation of nervous fibrillæ could be discovered. In somewhat older embryos, measuring about 16 mm. in length, we distinctly observe the first traces of the development of nervous fibrillæ, as well as of ganglionic bodies. The spinal marrow consists here still of an immense number of granules held together by a viscid material, the above-mentioned gelatinous, homogeneous liquid. The mutual adhesion of the granules, however, is still very slight; for on examining a small portion under the microscope it is lost, and the granules appear as if diffused through the latter. But on small portions adhering to the *pia mater*, it is observed that the granules have already begun to arrange themselves in rows. There are also a great number of nuclei distributed throughout the granular mass. In the substance of the brain we observe the first traces of the formation of ganglionic bodies in the form of small conical filamentary processes, composed of granules adhering to a number of nuclei. Otherwise, no granular fibrillæ are observed.

"In consequence of the muscular fibres of this period consisting also still of granular fibrillæ, it is very difficult to separate the peripheral nerves running between the muscles for microscopic examination; but on a bundle of nervous fibrillæ overlying a fragment of spinal marrow, and representing a root of the spinal nerves, I observed the granules already arranged in rows.

"In the embryo of about eight weeks old, the peripheral nerves are sufficiently developed to be dissected out. At this period the whole nerve consists, like that of the insect, only of a bundle of parallel granular fibrillæ, surrounded by a sheath. Besides a considerable number of small nuclei, their interspaces are filled up by very numerous free granules, which, arranging themselves also into rows, serve to the formation of new fibrillæ. In the spinal marrow, the granules are now decidedly arranged in rows, but as yet not so firmly fused into the form of a fibril as in the peripheral nerves. In the brain the arrangement of the granules into rows is not yet observed, though it may exist. I suppose the adhesion between the granules to be so feeble as to be easily disturbed by manipulation. The formation of the ganglionic bodies also seems to have not much further advanced than in the smaller embryos cited above. In the sympathetic ganglia of the ganglionic cords, however, which can be distinctly seen extending on each side of the vertebral column, we find the ganglionic bodies considerably further developed than in the cerebrospinal axis. They are formed by a collection of granules around the larger nuclei, from which the processes finally issue to form a connection with the granular fibrillæ representing the sympathetic nerve-fibres. The sympathetic nerves of this period consist, like the peripheral, only of a bundle of loose fibrillæ, surrounded by a delicate sheath, which is derived from that enveloping the entire ganglion. The ganglionic bodies of the spinal ganglia are still further advanced in development, for here the continuation of their processes into the nerve fibres can distinctly be seen.

"From the above-stated facts, we see, then, that the nervous system is by no means developed from the centre, as has been supposed; that is, the peripheral nerves do not arise from the great centres, and slowly extend into the other tissues. On the contrary, the nerve tissues, appearing at one and the same time throughout the animal organism, arrive at their full development sooner at the periphery than at the centre."

Want of space forbids pursuing this subject further into the development of the individual elements; we therefore turn to other portions of the article. Dr. Schmidt states that he has found that the multipolar ganglionic cell in the vesicular neurine, consists of a plexus of granular nervous fibrillæ, surrounded by a fine limiting membrane, which does not, however, manifest itself by a double contour. He considers that it is not entitled to the designation of a true, organic cell; and proposes, as a more correct term, the name ganglionic body, and thinks that its so-called nucleus possesses all the characters of a most perfect organic cell.

In the second part the mode of action of the nervous tissues is taken up.

The hypothesis of Herbert Spencer is quoted as the most plausible explanation of the phenomena, namely, that the transmission and recuperation of nerve force is due to molecular motion transmitted by means of *isomeric transformation* of the nerve cell, in which the force is augmented by the decomposition of some *unstable matter;* the nerve current being composed of innumerable waves of nervous energy caused by these molecules rapidly falling from one isomeric state to the other. But with the advance of knowledge of the microscopic anatomy of nervous tissue, this requires some modification. The following explanation is certainly ingenious:—

> "In regarding the axis cylinder as composed of homogeneous substance, no difficulty arises in understanding the isomeric transformation of its molecules, they all being of the same nature. But remembering that the axis cylinder represents a bundle of fibrillæ, each originally consisting of a row of granules, which, in the course of development, were held and fused together by an intermediate substance, the question arises, Is the latter identical in composition with the granules, or does it differ from it? The answer will be, that in the case where the molecular constitution of the granules is the same as that of the intermediate substance, the isomeric transformation must be equally the same throughout the entire length of the fibrillæ; while, in the other case, where the composition of the organic molecules of the one substance would differ from that of the molecules of the other, the process of transmission might rather resemble that going on in a *voltaic pile,* and consequently we might presume that a greater amount of nerve force would be generated. The observations of Fromann, if correct, rather indicate a difference in the organic composition of the two substances. This condition would somewhat account for the slowness of the nerve current." . . .
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> "The more the molecules of a nerve-fibrilla are subjected to isomeric transformation, the more readily they will adapt themselves to the passage of the nervous current. Thus, the so-called *automatic* actions of the voluntary muscles, as observed in the performance of many of the acts, may be explained. In the act of writing, for instance, the muscles concerned in the guiding of the pen are at first directed by the will, as seen in the uncertain movements of the hand of the pupil in drawing a letter. But in the course of time, when the nervous tracts, along which the stimulus arising in the cortical substance of the brain is conveyed to the muscles concerned, have been travelled so often, their composing molecules, it seems, have become more accustomed to the shifting of their position during the isomeric transformation. In consequence, the passage of the nervous current becomes easier, and the stimulus coming from the brain needs only to be renewed from time to time; the hand will mechanically perform the motions required; for the impulse starting the muscles to action, arising in the nerve-centres of the spinal marrow, has now a shorter route to travel. Many such examples of automatic action might be cited, such as the rapid movement of the fingers in the playing of musical instruments, and the acts of walking, and avoiding obstacles in the road, when the mind is intensely occupied by some interesting train of thought."

The following are the conclusions to which Dr. Schmidt has come regarding the mode of action of the nervous tissues:—

> "1. The nervous stimulus, arising at the peripheral termination of a nerve-fibrilla at a sentient surface, may be (?) directly, without being re-enforced by passing through some unstable organic matter, transmitted to the organ to be stimulated. 2. The ganglionic bodies seem to be stations, where a considerable number of nerve-fibrillæ, without forming any direct communication, meet around a central point—*the nucleus*—and then take their course to their final destination, either directly in the form of axis cylinders, or after having first taken part in the formation of a system of anastomoses. The function of the nucleus is of a problematical nature; it may consist in re-enforcing the nervous stimulus, or be confined to the limits of that of all other nuclei. 3. The granular substance of the nerve centres, consisting of groups of granules, I

regard as that substance by which nervous stimuli are received, and in which the nervous impulses originate to be transmitted to the various organs of the body. In the spinal marrow, the impressions made by the stimulus on the granular substance are *evanescent;* in the cortical substance of the brain, representing the seat of the mind, they are more or less *permanent.*"

That the brain secretes thought as the liver secretes bile is the favourite dictum of the school to which Dr. Schmidt belongs, is evident from the summary manner in which he dismisses the views of those who are not quite educated up to the point of acknowledging the essential identity of mind and matter.

Referring to mind, viewed as anything other than a manifestation of molecular change in matter, he says: "Of course, the agent, how much soever *ethereal* it may be, must nevertheless be *ponderable;* for if it was *imponderable,* it would be equivalent to a *nothing,* and a *nothing* cannot act upon a *something;*" the italics being the author's.

Force has been defined as anything which causes change in matter; but if the preceding proposition is true, then there is no such thing as force, because nothing exists in the universe but ponderable agents, which alone are capable of impressing our material senses. To attempt to simplify the subject by describing force as an attribute of matter, will not explain the phenomena better than before, nor alter the fundamental fact that matter is incapable of *spontaneous* change.

We conclude our already extended consideration of this interesting article with the following summary:—

"The conclusions then to which we ultimately must come by a careful study of the minute anatomy of the *nervous system* in general, and that of the *cortical layer* of the brain, the organ of the mind, in particular, are as follows: 1. All knowledge has originally been derived from the external world through the instrumentality of the special senses. 2. It is transmitted from the parent to the offspring by inheritance, manifesting itself then by instinctive actions, as especially observed in animals; or it is acquired through the special senses from the external world by the individual itself, and *subsequently* increased by education and training. 3. All additional faculties or qualities of the mind, gradually acquired, must be *accompanied by anatomical changes*—however small they may be—in its organ or mechanism, the brain. 4. It is by virtue of the anatomical changes that peculiar qualities and characters of the mind are transmitted by inheritance, from the parent to the offspring, from generation to generation."

In the next article, *On Pigmentary Deposits in the Brain resulting from Malarial Poisoning,* by Dr. Wm. A. Hammond, nothing of importance has been added to the admirable article of Dr. J. Forsyth Meigs in the *Penna. Hosp. Reports* for 1868, which, by the way, we do not find mentioned in this paper. The method of obtaining specimens of blood from malarial cases, recommended by Dr. Meigs, is, to say the least of it, better adapted to general practice than the plan, proposed by Dr. Hammond, of withdrawing blood from the interior of the spleen for microscopic examination, by plunging a hypodermic syringe directly into the interior of that organ. Perhaps, if the relative position of physician and patient were changed, Dr. Hammond might be led to entertain the same opinion.

A number of smaller articles, which want of space forbids mentioning in detail, are included in the volume; the most practical being one by Dr. N. B. Emerson on *Phosphorus in the Treatment of Neuralgia and other Neuroses,* in which the administration of free phosphorus is warmly recommended; given either in Thompson's solution, with alcohol, glycerine, and peppermint, or, preferably, in some cases, dissolved in cod-liver oil, in which form the writer has used it with good satisfaction.

We have no reason for doubting that the subsequent volumes of the reports of the Transactions of the American Neurological Association will maintain the standard attained by the first, and, therefore, welcome the series in advance as a substantial gain not only to the branch of medicine especially devoted to the study of normal and morbid nervous phenomena, but also to the general literature of medical science. F. W.

ART. XXIX.—*Transactions of American State Medical Societies.*

1. *Transactions of the Medical Society of the State of Pennsylvania*, June, 1875. 8vo. pp. 385. Philadelphia, 1875.
2. *Transactions of the Medical Society of New Jersey*, May, 1875. 8vo. pp. 250. Newark, N. J., 1875.
3. *Transactions of the Kentucky State Medical Society*, April, 1875. 8vo. pp. 48.
4. *Proceedings of the Medical Association of the State of Arkansas*, Nov. 1875. 8vo. pp. 76.
5. *Transactions of the Kansas Medical Society*, May, 1875. 8vo. pp. 82.
6. *Transactions of the Medical Society of the District of Columbia*, 1875. 8vo. pp. 94.
7. *Transactions of the Texas State Medical Association*, April, 1875. 8vo. pp. 223. Columbus, Texas.
8. *Transactions of the Colorado Territorial Medical Society*, June, 1874, and June, 1875. 8vo. pp. 77. Denver, Col., 1875.

1. DR. WM. PEPPER, in his Address in Medicine before the *Medical Society of the State of Pennsylvania*, enumerates the most important ideas and advances of the last ten years. Newly observed forms of disease, and new or improved means of observation and of treatment, are treated with rare discrimination and good judgment.

Dr. Curwen, of the State Hospital for the Insane at Harrisburg, contributes a judicious report upon mental disorders, dealing with the conditions of our social life as tending to impair health of mind, and with the means adapted to prevent mental disease.

The larger portion of the volume is made up of reports from the various county medical societies. In one of these is reported by Dr. E. P. Allen a case in which phlebitis was twice produced by the hypodermic injection of ergot, for fibrous tumour of the uterus.

The cure of aneurism of the left external iliac, by Faradization, is reported by Dr. Duncan.

An interesting case of diaphragmatic hernia, fatal many months after its origin, is reported from Lycoming County.

Dr. R. Davis advocates partial detachment and turning to one side of the placenta when attached over the os. Where dilatation of the os has made some progress, this treatment arrests hemorrhage without the necessity of version, and allows the labour to progress naturally.

The safety with which pneumatic aspiration may be employed is illustrated in a case described by Dr. Guthrie. Here the bladder was eighteen times emptied, without the slightest bad symptom.